

## CLAIMS

What is claimed is:

1. A resistor capacitor (RC) tracking loop comprising:  
5 an integrator charged by at least one buffer for providing a ramped voltage output proportional to a measured RC time constant;  
a comparator for sensing both the ramped voltage output from the integrator and a plurality of reference signals;  
a timer activated by the comparator for counting a time period between  
10 predetermined events; and  
wherein the timer is activated when the ramped voltage output from the integrator crosses a first predetermined voltage level and deactivated when the integrator crosses a second predetermined voltage level.
- 15 2. The RC tracking loop as in claim 1, further comprising:  
a transmission-gate for resetting at least one capacitor in the integrator; and  
wherein the integrator is placed into a unity-gain mode for the purpose of sensing its input offset voltage.
- 20 3. The RC tracking loop as in claim 1, further comprising:  
an accumulator for adjusting at least one component network in a continuous time filter when a timer count is outside a predetermined range.
4. The RC tracking loop as in claim 3, wherein the accumulator is  
25 incremented or decremented by the timer.
5. The RC tracking loop as in claim 3, wherein the component network is used to alter an RC time constant within the continuous time filter.

6. The RC tracking loop as in claim 1, further comprising:  
offset compensation circuitry for altering the RC time constant between the at  
least one buffer and integrator.

5

7. The RC tracking loop as in claim 1, wherein the at least one buffer and  
integrator are initialized using a digital controller.

8. A resistor capacitor (RC) tracking loop used to adjust a continuous time  
10 filter in a digital communications system comprising:

a controller;

a buffer supplied with a control signal from the controller;

an integrator for providing a ramp output signal proportional to the RC time  
constant of a charge voltage supplied from the buffer;

15 a comparator for comparing the ramp output signal and a multiplexed voltage  
reference signal;

a timer activated by the single comparator; wherein

the timer is started and stopped based upon the ramp output signal crossing a  
plurality of threshold levels.

20

9. An RC tracking loop as in claim 8, further comprising:

an accumulator controlled by the timer which is incremented or decremented  
based upon whether a timer count falls within a predetermined range.

25 10. An RC tracking loop as in claim 9, wherein the accumulator controls a  
tuning network in a continuous time filter for adjusting continuous time filter parameters.

11. An RC tracking loop as in claim 8, wherein the comparator cancels out comparator delay and offset.

12. An RC tracking loop as in claim 10, wherein the compensation circuit is  
5 switched in series between the buffer and integrator.

13. An RC tracking loop as in claim 10, wherein the multiplexed voltage reference signal is comprised of a substantially low reference voltage ( $V_{REFLO}$ ) and a substantially high reference voltage ( $V_{REFHI}$ ).  
10

14. A method for adjusting a continuous time filter using an RC tracking loop comprising the steps of:  
charging an integrator in the RC tracking loop using at least one buffer;  
providing a ramped output voltage from the integrator that is proportional to the  
15 RC time constant of charge from the buffer;  
comparing the ramped output voltage from the integrator with a first predetermined reference voltage;  
initiating a timer when the ramped output voltage crosses the first predetermined reference voltage;  
20 stopping the timer when the ramped output voltage crosses a second predetermined reference voltage;  
measuring a time count for determining if the timer counter is within a predetermined range;  
resetting a buffer and integrator if the timer count is within a predetermined  
25 range; and  
adjusting an accumulator if the timer count is outside the predetermined range.

15. A method for adjusting a continuous time filter as in claim 14, further comprising the step of:

adjusting the value of a tuning network in the continuous time filter based upon an incremented or decremented value in the accumulator.